

BIOTECHNOLOGY ITS APPLICATIONS

1. An important objective of biotechnology in agriculture section is to:
 - (a) increase plant weight
 - (b) decrease seed number
 - (c) increase nitrogen content
 - (d) produce pest resistant varieties of plant
 2. Green revolution resulted in the great increase in production of food grains due to:
 - (a) introduction of high-yielding varieties
 - (b) use of pesticides to better management techniques
 - (c) use of agrochemicals
 - (d) all of the above
 3. Food production can be increased by:
 - (a) genetically engineered crop-based agriculture
 - (b) agro-chemical based agriculture
 - (c) organic agriculture
 - (d) all of the above
 4. Genetically modified organisms (GMO) have been useful for:
 - (a) making crops more tolerant to abiotic stresses
 - (b) helping to reduce post-harvest losses
 - (c) enhancing nutritional value of food
 - (d) all of the above
 5. Which of the following is obtained from genetic engineering?
 - (a) Glucose
 - (b) Golden rice
 - (c) Haemoglobin
 - (d) None of these
 6. Which of the following has not been synthesized by DNA technology?
 - (a) Insulin
 - (b) Interferon
 - (c) Haemoglobin
 - (d) Somatostatin
 7. A transgenic food crop which may help in solving the problem of night blindness in developing countries is:
 - (a) Golden rice
 - (b) Bt Soyabean
 - (c) Starlink maize
 - (d) Flavr Savr tomatoes
 8. Golden rice is a transgenic crop of the future with the following improved trait:
 - (a) insect resistance
 - (b) high protein content
 - (c) high vitamin—A content
 - (d) high lysine (essential amino acid) content
 9. An improved, variety of transgenic basmati rice:
 - (a) gives high yield and is rich in vitamin A
 - (b) gives high yield but has no characteristic aroma
 - (c) does not require chemical fertilizers and growth hormones
 - (d) is completely resistant to all insect pests and diseases of paddy
 10. Golden rice is:
 - (a) long stored rice having yellow colour tint
 - (b) a transgenic rice having gene for 13—carotene
 - (c) wild variety of rice with yellow coloured grains
 - (d) a variety of rice grown along the yellow river in China
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11. The problem of blindness in poor countries can be taken care of by using the following:
 - (a) Transgenic maize
 - (b) Bt brinjal
 - (c) Transgenic tomato
 - (d) Golden rice
 12. A transgenic rice (Golden rice) has been developed for increased content of:
 - (a) Vitamin A
 - (b) Vitamin B₁
 - (c) Vitamin C
 - (d) Vitamin D
 13. Vitamin A rich transgenic plant is:
 - (a) Bt Cotton
 - (b) Golden Rice
 - (c) Vaccinated Potato
 - (d) Flaw Saw Tomato
 14. Golden rice is a variety rich in:
 - (a) biotin
 - (b) Lysine
 - (c) Vitamin C
 - (d) β -carotene and ferritin
 15. Cultivation of Bt cotton has been much in the news. The prefix "Bt" means:
 - (a) "Barium—treated" cotton seeds
 - (b) Carrying an endotoxin gene from *Bacillus thuringiensis*
 - (c) "Bigger thread" variety of cotton with better tensile strength
 - (d) Produced by "biotechnology" using restriction enzymes and ligases
 16. What does Bt stand for the popular crop Bt cotton?
 - (a) Best
 - (b) Best type
 - (c) Biotechnology
 - (d) *Bacillus tomentosa*
 - (e) *Bacillus thuringiensis*
 17. The Bt gene for insect resistance was obtained from:
 - (a) *B. tumefaciens*
 - (b) *B. radicola*
 - (c) *B. thuringiensis*
 - (d) *B. amyloliquifaciens*
 18. Isolation of Bt gene from bacterium (*Bacillus thuringiensis*) was taken up in the year:
 - (a) 1977
 - (b) 1981
 - (c) 1997
 - (d) 1990
 19. Bt toxin is obtained from:
 - (a) prokaryotes
 - (b) eukaryotes
 - (c) both (a) and (b)
 - (d) none of these
 20. A protoxin is:
 - (a) inactive toxin
 - (b) a primitive toxin
 - (c) a denatured toxin
 - (d) toxin produced by protozoa
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21. What is true about Bt toxin?
- The concerned Bacillus has antitoxins.
 - Bt protein exists as active toxin in the Bacillus.
 - The inactive protoxin gets converted into active form in the insect gut.
 - The activated toxin enters the ovaries of the pest to sterilise it and thus prevent its multiplication.
22. If you engineer the gene for Bt toxin from *Bacillus thuringiensis* into a tomato plant, the resulting plant will be:
- die
 - have a *Bacillus* infection
 - to be toxic to insect that eat the plants
 - be toxic to human who eat the tomatoes
23. Which one of the following bacterium is used extensively as biopesticide?
- Bacillus subtilis*
 - Streptococcus lactis*
 - Bacillus thuringiensis*
 - Lactobacillus acidophilus*
24. Which of these is not correct regarding Bt cotton?
- No such plant is heard of
 - It is a disease/resistant plant
 - It produces more yield of cotton
 - It has been obtained by recombination
25. The protein toxin producing bacteria, which used to control biological pest is :
- E. coli*
 - Agrobacterium*
 - Mycobacterium sp.*
 - B. thuringiensis*
26. *Bacillus thuringiensis* (Bt) strains have been used for designing novel:
- Biofertilizers
 - Bioinsecticidal plants
 - Biometallurgical techniques
 - Biomineralization processes
27. Match List I with List II and select the correct option:
- | List I | List II |
|---------------------------------|-------------------------------|
| A <i>Bacillus thuringiensis</i> | 1 Production of chitinases |
| B <i>Rhizobium meliloti</i> | 2 Scavenging of oil spills |
| C <i>Escherichia coli</i> | 3 Incorporation of nif gene |
| D <i>Pseudomonas putida</i> | 4 Production of Bt toxin |
| E <i>Trichoderma</i> | 5 Production of human insulin |
- A — 2, B — 4, C — 1, D — 5, E — 3
 - A — 2, B — 4, C — 5, D — 1, E — 3
 - A — 4, B — 3, C — 5, D — 2, E — 1
 - A — 3, B — 4, C — 5, D — 1, E — 2
 - A — 4, B — 2, C — 5, D — 3, E — 1
28. Bt cotton is resistant to:
- insects
 - herbicides
 - salt resistant
 - drought resistant

29. Bt cotton genes repel:
- (a) bacterial pathogens
 - (b) fungal pathogens
 - (c) nematode parasites
 - (d) insect pests
30. *Bacillus thuringiensis* is used to control:
- (a) bacterial pathogens
 - (b) fungal pathogens
 - (c) nematodes
 - (d) insect pests
31. cryII Ab and cry I Ab produce toxins that control:
- (a) cotton boll worm and corn borer respectively
 - (b) corn borer and cotton bollworm respectively
 - (c) tobacco budworms and nematodes respectively
 - (d) nematodes and tobacco budworms respectively
 - (e) corn borer and tobacco budworms respectively
32. Bt cotton is not:
- (a) AGM plant
 - (b) Insect resistant
 - (c) Resistant to all pesticides
 - (d) A bacterial gene expressing system
33. The trigger for activation of toxin of *Bacillus thuringiensis* is:
- (a) high temperature
 - (b) alkaline pH of gut
 - (c) acidic pH of stomach
 - (d) mechanical action in the insect gut
34. First genetically modified plant commercially released in India is:
- (a) Bt-brinjal
 - (b) Bt-cotton
 - (c) Golden rice
 - (d) Slow ripening tomato
35. Some of the characteristics of Bt cotton are:
- (a) Long fibre and resistance to aphids
 - (b) High yield and resistance to bollworms
 - (c) Medium yield, long fibre and resistance to beetle pests
 - (d) High yield and production of toxic protein crystals which kill dipteran pests
36. The protein products of the following Bt toxin genes cryIAb and cryIIAb are responsible for controlling:
- (a) Moth
 - (b) Fruit fly
 - (c) Bollworm
 - (d) Roundworm
37. Crystals of Bt toxin produced by some bacteria do not kill the bacteria because:
- (a) toxin is inactive
 - (b) toxin is immature
 - (c) bacteria are resistant to toxin
 - (d) bacteria enclose toxin in a special sac
38. The genetically-modified (GM) brinjal in India has been developed for:
- (a) Insect-resistance
 - (b) Enhancing shelf life
 - (c) Drought-resistance
 - (d) Enhancing mineral content

39. Flavr Savr variety of tomato is a:
- (a) high yielding variety
 - (b) transgenic crop
 - (c) mutated form
 - (d) somaclonal variety
40. An example of gene silencing is:
- (a) Bt Cotton
 - (b) Transgenic rice
 - (c) Flavr savr tomato
 - (d) Transgenic Maize
41. What is antisense technology?
- (a) RNA polymerase producing DNA
 - (b) Production of somaclonal variants in tissue cultures
 - (c) A cell displaying a foreign antigen used for synthesis of antigens
 - (d) When a piece of RNA that is complementary in sequence is used to stop expression of a specific gene
42. In RNAi, genes are silenced using:
- (a) ds RNA
 - (b) ss RNA
 - (c) ss DNA
 - (d) ds DNA
43. Silencing of a gene could be achieved through the use of:
- (a) short interfering RNA (RNAi)
 - (b) antisense RNA
 - (c) by both of the above
 - (d) none of the above
44. RNA interference technique is used successfully to control the nematode:
- (a) *Loa loa*
 - (b) *Necator americanus*
 - (c) *Rhabditis maupasi*
 - (d) *Meloidogyne incognita*
45. The process of RNA interference has been used in the development of plants resistant to:
- (a) insects
 - (b) fungi
 - (c) viruses
 - (d) nematodes
46. Silencing of mRNA has been used in producing transgenic plants resistant to.
- (a) bollworms
 - (b) nematodes
 - (c) white rusts
 - (d) bacterial blights
47. The Nobel Prize in Physiology or Medicine 2006 was awarded jointly to Andrew Z. Fire and Craig C. Mello for:
- (a) RNA interference — gene silencing by double-stranded RNA technique.
 - (b) hybridoma technology for the production of monoclonal antibodies
 - (c) invention of polymerase chain reaction
 - (d) recombinant DNA technology
48. Genetically engineered bacteria are being used in commercial production of:
- (a) melatonin
 - (b) thyroxine
 - (c) human insulin
 - (d) testosterone

49. Humulin is a/an:
- (a) fat
 - (b) acid
 - (c) protein
 - (d) carbohydrate
50. Humulin is:
- (a) human insulin
 - (b) a form of chitin
 - (c) a powerful antibiotic
 - (d) a new digestive enzyme
51. The first genetically engineered human insulin was launched in the year:
- (a) 1975
 - (b) 1990
 - (c) 1993
 - (d) 1983
52. First hormone prepared artificially by culturing bacteria was:
- (a) insulin
 - (b) oxytocin
 - (c) adrenaline
 - (d) somatotropin
53. First biochemical to be produced commercially by microbial cloning and genetic engineering is:
- (a) interferons
 - (b) penicillin
 - (c) human insulin
 - (d) fertility factors
54. C-peptide of human insulin is:
- (a) A part of mature insulin molecule
 - (b) Responsible for its biological activity
 - (c) Responsible for formation of disulphide bridges
 - (d) Removed during maturation of pro-insulin to insulin
55. Maturation of genetically engineered proinsulin into insulin takes place after:
- (a) joining of c-peptide
 - (b) removal of c-peptide
 - (c) removal of disulphide bridge
 - (d) all of the above
56. The first genetically engineered human insulin was launched in the year :
- (a) 1975
 - (b) 1993
 - (c) 1990
 - (d) 1983
57. Human insulin is being commercially produced from a transgenic species of:
- (a) Rhizobium
 - (b) Escherichia
 - (c) Saccharomyces
 - (d) Mycobacterium
58. Which of the following is produced by genetically engineered bacteria:
- (a) Thyroxine
 - (b) Insulin
 - (c) Glucagon
 - (d) ADH

59. Which is true?
- Centromere is found in animals which produces aster during cell division
 - Insulin gene is present in every body cell
 - Nucleosome is formed of nucleotides
 - DNA has a core of eight histones
60. Some of the steps involved in the production of humulin are given below. Choose the correct sequence.
- Synthesis of gene (DNA) for human insulin artificially
 - Culturing recombinant *E. coli* in bioreactors
 - Purification of humulin
 - Insertion of human insulin gene into plasmid
 - Introduction of recombinant plasmid into *E. coli*
 - Extraction of recombinant gene product from *E. coli*
- ii, i, iv, iii, v, vi
 - 1, iii, v, vi, ii, iv
 - i, iv, v, 11, vi, iii
 - ill, v, ii, 1, vi, iv
61. The first clinical gene therapy was done for the treatment of:
- AIDS
 - Cancer
 - Cystic fibrosis
 - SCID (Severe Combined Immuno Deficiency resulting form deficiency of ADA)
62. ADA is an enzyme which is deficient in a genetic disorder SCID. What is the full form of ADA?
- Arginine deaminase
 - Aspartate deaminase
 - Adenosine deaminase
 - Adenosine deoxy aminase
63. Abnormal gene is replaced by normal gene through:
- cloning
 - radiation
 - medicines
 - gene therapy
64. is the transfer of normal genes into body cells to correct a genetic defect:
- Gene therapy
 - Gene mutation
 - Reverse transcription
 - Nucleic acid hybridization
65. An example of gene therapy is:
- production of injectable Hepatitis B vaccine
 - production of vaccines in food crops like potatoes which can be eaten
 - production of test tube babies by artificial insemination and implantation of fertilized eggs
 - introduction of gene for adenosine deaminase in persons suffering from Severe Combined Immuno Deficiency (SCID)
66. SCID is caused by defective gene coding for the enzyme:
- adenosine deaminase
 - guanosine deaminase
 - adenosine transferase
 - adenosine transaminase
 - guanosine transaminase
67. Disorder in which B-lymphocytes and T-lymphocytes art not formed in:
- AIDS
 - SCID
 - Cystic fibrosis
 - Muscular dystrophy

68. Which of these is used as vector in gene therapy for SLID?
- (a) Arbovirus
 - (b) Rotavirus
 - (c) Retrovirus
 - (d) Enterovirus
 - (e) Parvovirus
69. The genetic defect-adenosine deaminase (ADA) deficiency may be cured permanently by:
- (a) enzyme replacement therapy.
 - (b) administering adenosine deaminase activators.
 - (c) periodic infusion of genetically engineered lymphocytes having functional ADA cDNA.
 - (d) introducing bone marrow cells producing ADA into cells at early embryonic stages.
70. Find the incorrect statement:
- (a) Gene therapy is a genetic engineering technique used to treat disease at molecular level by replacing defective genes with normal genes.
 - (b) Calcitonin is a medically useful recombinant product in the treatment of infertility.
 - (c) Bt.toxin is a biodegradable insecticide obtained from *Bacillus thuringensis*.
 - (d) *Trichoderma* sp. is a biocontrol agent for fungal diseases of plants.
 - (e) Totipotency is the potential ability of a cell to develop into a complete plant.
71. Small oligonucleotides capable of recognising complementary sequence are known as:
- (a) cDNA
 - (b) Hybridoma
 - (c) Repetitive DNA
 - (d) Molecular probes
72. A molecular probe might be used to:
- (a) find a nucleotide sequence
 - (b) insert gene into a host cell
 - (c) make DNA for gene cloning
 - (d) cut pieces of DNA down to manageable size
73. A probe which is a molecule used to locate specific sequences in a mixture of DNA or RNA molecules could be:
- (a) A single stranded RNA
 - (b) A single stranded DNA
 - (c) Either RNA or DNA
 - (d) Can be ss DNA but not ss RNA
74. The DNA probe CTTCAAT will hybridize DNA containing:
- (a) GAAGTTA
 - (b) GUUGAAU
 - (c) CTTCAAT
 - (d) GAAGAAT
75. ELISA is used to detect viruses where the key reagent is:
- (a) DNA probe
 - (b) RNase
 - (c) Alkaline phosphatase
 - (d) Catalase
76. Hybridoma technology was developed by:
- (a) Taggart 1982
 - (b) Vitella et al. 1982
 - (c) Prie and Saxton 1987
 - (d) Milstein and Kohler 1982

77. Hybridoma technology has been successfully used in:
- (a) synthesis of haemoglobin
 - (b) production of alcohol in bulk
 - (c) production of somatic hybrids
 - (d) synthesis of monoclonal antibodies
78. Monoclonal antibody is produced from:
- (a) hybridoma
 - (b) melanoma
 - (c) myeloma
 - (d) B-lymphocyte
79. Cesar Milstein and Georges J. F. KOHLER developed biotechnology for the production of:
- (a) myelomas
 - (b) steroid conversion
 - (c) immobilised enzymes
 - (d) monoclonal antibodies
80. Milstein and Kohler won the Nobel Prize for the development of monoclonal antibodies in the year:
- (a) 1978
 - (b) 1975
 - (c) 1984
 - (d) 1991
81. The cells obtained from cancerous tumours are known as:
- (a) myelomas
 - (b) hybridomas
 - (c) lymphocytes
 - (d) monoclonal cells
82. Which is employed for synthesis of monoclonal antibody by hybridoma technique?
- (a) RBCs
 - (b) Liver cells
 - (c) Tumour cells
 - (d) Nerve cells
83. 'Hybridoma' refers to:
- (a) DNA-RNA hybrid molecules
 - (b) DNA-DNA hybridized molecules
 - (c) fused somatic cells of different types, one of them derived from a tumour
 - (d) fused gametic cells of two opposite sexes one of them being derived from a tumour-bearing patient
84. Hybridomas are the fusion product of:
- (a) normal antibody producing cell with myeloma
 - (b) abnormal antibody producing cell with myeloma
 - (c) sex cells with myeloma
 - (d) bone cells with myeloma
85. Hybridoma is a biotechnique which involves fusion of:
- (a) B-cell with T-cell
 - (b) T-cell with spleen cell
 - (c) Spleen cell with myeloma cell
 - (d) Myeloma cell with B-cell
86. Magic bullets are the:
- (a) anabolic steroids
 - (b) recombinant vaccines
 - (c) monoclonal antibodies
 - (d) chemotherapy drugs for cancer

87. Hybridoma is connected with:
- (a) Monoclonal antibody formation
 - (b) Antibody -antigen interaction
 - (c) Activity of NK cells
 - (d) Growth of cancer
88. The first vaccine for human use produced using recombinant DNA technology was:
- (a) AIDS vaccine
 - (b) MMR vaccine
 - (c) Polio vaccine
 - (d) Hepatitis B vaccine
89. Hepatitis B vaccine is a:
- (a) Second generation vaccine
 - (b) Third generation vaccine
 - (c) First generation vaccine
 - (d) None of the above
90. Vaccines prepared through recombinant DNA technology are called:
- (a) First generation vaccines
 - (b) Second generation vaccines
 - (c) Third generation vaccines
 - (d) None of the above
91. Genetic engineering is employed to produce vaccines for:
- (a) Herpes virus
 - (b) Hepatitis B
 - (c) Both of these
 - (d) None of these
92. Transgenic plants are:
- (a) plants having no gene
 - (b) plants in which genes have no function to perform
 - (c) plants into which genes of another organism have been implanted
 - (d) plants in which genes are present in an opposite or transposition
93. Transgenic plants are the ones:
- (a) generated by introducing foreign DNA into a cell and regenerating a plant from that cell.
 - (b) grown in artificial medium after hybridization in the field.
 - (c) produced after protoplast fusion in artificial medium.
 - (d) produced by a somatic embryo in artificial medium.
94. Main objective of production of herbicide resistant GM crop is to:
- (a) encourage ecofriendly herbicides
 - (b) reduce herbicide accumulation in food articles for health safety
 - (c) eliminate weeds from fields without the use of herbicides
 - (d) eliminate weeds from fields without use of herbicides
95. Transgenic hirudin is obtained from:
- (a) Potato
 - (b) Tomato
 - (c) Brassica napus
 - (d) Ocimum sanctum
96. Which one of the following bacteria has found extensive use in genetic engineering work in plants?
- (a) Xanthomonas citri
 - (b) Bacillus coagulans
 - (c) Clostridium septicum
 - (d) Agrobacterium tumefaciens

97. Natural genetic engineer is:
- Agrobacterium tumefaciens
 - Bacillus subtilis
 - Pseudomonas spp
 - Escherichia coli
98. In plant biotechnology, PEG is used in:
- Hardening
 - Protoplast fusion
 - Protoplast isolation
 - Cell culture preparation
99. Which one of the following bacterium is used for production of transgenic plants:
- Escherichia coli
 - Bacillus thuringiensis
 - Staphylococcus aureus
 - Agrobacterium tumefaciens
100. Which of the following would be considered a transgenic organism?
- A rat with rabbit haemoglobin genes
 - A bacterium that has received genes via conjugation
 - A fern grown in cell culture from a single fern root cell
 - A human treated with insulin produced by E. coli bacteria
101. Genetic engineering has been successfully used for producing:
- transgenic mice for testing safety of polio vaccine before use in humans
 - transgenic models for studying new treatments for certain cardiac diseases
 - transgenic Cow-Rosie which produces high fat milk for making ghee
 - animals like bulls for farm work as they have super power
102. Maximum number of existing transgenic animals is of:
- Pig
 - Fish
 - Mice
 - Cow
103. Transgenic animals have been used:
- for testing safety of vaccines
 - for testing toxicity of drugs
 - to produce useful biological products
 - all of the above
104. α -1 antitrypsin is:
- An antacid
 - An enzyme
 - Used to treat arthritis
 - Used to treat emphysema
105. The protein α -1 antitrypsin is used to treat the disease:
- Cancer
 - Emphysema
 - Rheumatoid arthritis
 - Alzheimer's disease
 - ADA deficiency disease in children
106. Which transgenic animal has been given human genes for organ transplantation into humans without risk of rejection?
- | | |
|-----------|----------|
| (a) Pig | (b) Cow |
| (c) Sheep | (d) Goat |

107. Which one of the following techniques made it possible to genetically engineer living organisms?
- (a) Hybridization
 - (b) X-ray diffraction
 - (c) Heavier isotope labelling
 - (d) Recombinant DNA techniques
108. Recombinant DNA or rDNA technology was discovered by:
- (a) Watson
 - (b) Khorana
 - (c) Sutton and Boveri
 - (d) Cohen and Boyer
 - (e) Bateson and de Vries
109. Recombinant DNA technology can be used to produce large quantities of biologically active form of which one of the following products in *E. coli*?
- (a) Interferon
 - (b) Ecdysone
 - (c) Rifampicin
 - (d) Luteinizing hormone
110. Name of the drug used in cancer treatment produced by using biotechnology:
- (a) HGH
 - (b) TSH
 - (c) Interferon
 - (d) Insulin
 - (e) Terramycin
111. Tissue plasmin activator:
- (a) dissolve clot in blood vessels of heart
 - (b) help in wound healing
 - (c) allergy response
 - (d) none of these
112. The name of the drug used in cancer treatment produced by biotechnology is:
- (a) TSH
 - (b) HGH
 - (c) Insulin
 - (d) Interferon
113. A genetically engineered microbe utilized for cleaning oil spills is:
- (a) *Bacillus subtilis*
 - (b) *Escherichia coli*
 - (c) *Pseudomonas putida*
 - (d) *Agrobacterium tumefaciens*
114. The bacterium *Pseudomonas* is useful because of its ability to:
- (a) fix atmospheric nitrogen in the soil
 - (b) produce a wide variety of antibiotics
 - (c) transfer genes from one plant to another
 - (d) decompose a variety of organic compounds
115. Genetically engineered microorganism used successfully in bioremediation of oil spills is:
- (a) *Bacillus*
 - (b) *Trichoderma*
 - (c) *Xanthomonas*
 - (d) *Pseudomonas*

116. Match the following and choose the correct combination from the options given:

Column I	Column II
A Escherichia coli	1 'M' gene
B Rhizobium meliloti	2 Digestive hydrocarbons of crude oil
C Bacillus thuringiensis	3 Human insulin production
D Pseudomonas putida	4 Biocontrol of fungal disease
	5 Biodegradable insecticide

- (a) A = 3, B = 1, C = 5, D = 4
 (b) A = 1, B = 2, C = 3, D = 4
 (c) A = 2, B = 1, C = 3, D = 4
 (d) A = 4, B = 3, C = 1, D = 2
 (e) A = 3, B = 1, C = 5, D = 2
117. Which of the following gene is responsible for biological nitrogen fixation ?
 (a) Nif gene
 (b) Nitrogenase
 (c) RNA synthetase
 (d) Yeast alanine t-RNA synthetase
118. A regulatory body working under MoEF for the release of transgenic crops is:
 (a) NBPGR
 (b) GEAC
 (c) NSC
 (d) NIPGR
119. GEAC stands for:
 (a) Genome Engineering Action Committee
 (b) Ground Environment Action Committee
 (c) Genetic Engineering Approval Committee
 (d) Genetic and Environment Approval committee
120. Choose the correct option regarding Retrovirus:
 (a) A ssDNA virus
 (b) A dsRNA virus
 (c) A DNA virus that can synthesise RNA during infection
 (d) An RNA virus that can synthesise DNA during infection
121. A patent is a monopoly granted to a person for:
 (a) making an improvement of an existing article
 (b) inventing a new process of making an article
 (c) invention of a new and useful article
 (d) all of the above
122. The criteria for a patent are:
 (a) utility
 (b) novelty
 (c) inventiveness
 (d) all of these
123. The patent is grant for a fixed period of time, generally for:
 (a) five years
 (b) ten years
 (c) twenty years
 (d) fifteen years
124. Illegal and unlawful development of biomaterials without payment to inhabitants of their region is called:
 (a) biowar
 (b) biopiracy
 (c) biopatent
 (d) biotechnology

125. Which of the following is used as biological warfare agent?
- (a) Smallpox virus
 - (b) Bacillus anthracis
 - (c) Both of these
 - (d) None of these
126. What right does a patent-holder
- (a) Right to make
 - (b) Right to use
 - (c) Right to export
 - (d) All of these
127. The unauthorized publication or reproduction of another's material is termed:
- (a) piracy
 - (b) theft
 - (c) dacoity
 - (d) robbery
128. Bioweapons are :
- (a) invisible
 - (b) low cost
 - (c) difficult to detect
 - (d) all of these
129. Which of the following is/are true?
1. Biowar Biowar is the use of biological weapons against humans and or their crops and animals
 2. Bioethics Bioethics is the unauthorised use of bioresources and traditional knowledge related to bioresources for commercial benefits
 3. Biopatent Exploitation of bioresources of other nations without proper authorisation
- (a) 2 only
 - (b) 1 only
 - (c) 1 and 2 only
 - (d) 1 and 3 only
 - (e) 2 and 3 only